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by Dupuyten, and in Germany by Wunderlich. There is no reason to doubt this casual nexus. Can call these affections nothing more than a specific symptom-complex, as Dupuyten has done. They generally take the course of hallucinatory confusional insanity. Rose thinks almost all psychoses following operations are to be considered as delirium tremens, and further that sepsis and high fever may form a substratum of the mental disturbance. Some psychoses developing with hallucinatory confusion he designates as inanition deliria. Von Frankl-Hochwart considers these psychoses relatively rare compared with those following eye-operations. In Vienna the last are much more common than the first.

Winiwarter speaks of psychoses after surgical operations as being especially rare. When Fuerstner reported the first case of insanity after a gynaecological operation he expressed surprise that the case should be so rare while they are so frequent after eye-operations.

Werth could collect only 34 cases of insanity after surgical operations. This disproportion is all the more striking when it is considered how many factors enter into surgical operations that seldom occur in eye-operations, such as the great pain before and after the operation, febrile phenomena, cachexia of cancer, disposition to tuberculosis often occurring in joint disease, inanition, etc. Surgical cases are often depressed in emotions, since they are to suffer the loss of some member, while eye-patients *per contra* have the hope of regaining their sight. The author collects 19 cases of psychoses after surgical operations, of which 3 were of delirium tremens, showing that insanity after surgical operations is comparatively rare in spite of the fact that besides the operation the other important etiological factors are so frequent. What is the special feature of eye-operations that psychoses so often follow them? That lesion of the sensitive optic nerves must be a tremendous irritation is clear *à priori*, and attention is called to the connection between irritation of the trigeminas (neuralgia) and psychoses. Psychoses have developed through simple injury to the bulb—(Griesinger, Arndt and Fürstner). That mental disturbances may arise through irritation of the sense-organs is indicated by the influences of ear diseases and by Esquirol's observation of insanity following a strong smell. According to our author's researches blind people have a special predisposition to mental disease, of predisposing moment in eye diseases is the psychical factor that loss of sight is especially feared [This does not agree well with author's previous statement that hope of regaining the sight was in the favor of these patients as against the fears of ordinary surgical cases]. Also in any of the cases that the oculist has to do with are of advanced age. Of greatest importance, however, appears to be the influence of darkness that is necessary in the after treatment, together with the absolute rest and the separation from the outer world.

Eine psychische Störung combinirt mit multipler Neuritis. (Psychosis polyneuritica seu cerebropathica psychica toxæmica.) DR. S. S. KORSAKOFF. *Allg. Zeitschr. f. Psychiatrie*, 1889, xlv. Bd., H. 4, p. 475.

Previous to the present article Korsakoff has published articles in Russian describing the disease, which he claims is little known to physicians, although numerous instances have appeared in the practice of alienists and also of gynaecologists. The disease is especially liable to develop after certain diseases, such as puerperal fever, acute and chronic infectious diseases. Korsakoff claims that this form of mental disease is unknown, and that there is no description of it in literature. In almost all cases the symptoms of multiple neuritis may be found, in some cases they are but little marked, in others the symptoms of neuritis, paralyzes, contractures, muscle atrophies and pains are so predominating that they may cover up the mental disturbance. Besides the combination with the neuritic symptoms, the symptom-complex of the

mental disturbance is in itself characteristic, especially the disturbance of memory and of the association of ideas. All these things taken together give the disease so peculiar a stamp that it is incomprehensible to Korsakoff that it has not been described before, but he explains this by the fact that the disease occurs in the course of other diseases, and the attention of the physician is concentrated on these, and thus the complications on the side of the nervous system are overlooked. The beginnings of the disease are frequently difficult to recognize. Since it ordinarily develops as a complication of severe diseases such as typhoid, puerperal fever and the like, its initial symptoms are bound up with the usual weakness, exhaustion of the nervous system and anæmia of the brain. The beginning is usually ushered in by vomiting, sometimes very stubborn. Then considerable weakness develops. The patient staggers on walking, his gait is progressively unsteadier, finally he can no longer stand and must lie down. The paralysis of the lower extremities now becomes noticeable, and the motions of the feet and toes are disturbed. The upper extremities, hands and fingers, are also frequently involved. Pains develop in the arms and legs, the muscles fall away considerably, the electrical contractility diminishes, contractures and sometimes œdema develop, and the patellar reflex ordinarily disappears early. In severe cases there may be complete paralysis of the extremities, the muscles of the back become paralyzed, likewise the bladder and diaphragm, and finally paralysis of the heart occurs through disturbance of the functions of the vagus. Parallel with these symptoms in which the multiple neuritis shows itself, there proceeds the development of the mental disturbance. These are less striking in the beginning and manifest themselves externally as simple irritability or lowered activity of the nervous system referable to the general weakness. At first the patients appear very capricious and assuming, or on the contrary, very apathetic, and sleep in the way that much exhausted men are accustomed to do, but symptoms develop later that make it certain that the disease is not like an ordinary nervous weakness. These symptoms appear either in the form of excessive irritability and great unrest, or as outbreaks of acute mania with clouded consciousness, or again in the form of marked loss in the mental sphere and deep disturbance of memory. Careful examination of the mental symptoms reveals a multitude of peculiarities which are very significant for the diagnosis of this disease. The mental symptoms do not make their appearance in all cases in the same manner. In certain cases there is a greatly increased irritability and excitability with consciousness well preserved; in other cases, on the contrary, consciousness may be confused, and there may be apathy or agitation, and finally in still other cases a characteristic disturbance of memory comes to the front, a special kind of amnesia. If the mental excitement consists in increased susceptibility and irritability, this is generally displayed in great excitability, unrest and vague fear. The patient fears death, an attack, or he knows not what; fears to remain alone, constantly calls to himself, sighs, or laments his fate. Not rarely the consciousness remains clear a long time, but in many cases after the first few days of excitement consciousness becomes confused. Patient mixes up words and cannot speak connectedly. Every day the confusion increases, patient begins to tell of all kinds of monstrosities, speaks of journeys that were never performed, mixes up old reminiscences with recent events, does not know where he is or what is going on about him; sometimes illusions of sight and hearing develop which still more confuse the patient. Thus the same patient is at times entirely quiet, at other times very restless. The disturbed periods usually come on towards evening, when the patient begins to be restless, becomes angry if he is not given what he wants; sometimes the restlessness reaches a very high degree. There may be attacks of raving, of acute mania. Sometimes these may occur in the

beginning of the disease, later the excitement may still exist, yet it may not break out in attacks, but is limited to singing songs the whole night through. Sometimes the disturbance of consciousness reaches a very high degree and may almost go to the complete loss of consciousness. With this there also goes a deep disturbance of memory. It takes the form of a peculiar amnesia, in which the memory for recent events is principally disturbed, while that for events long past remains very good. Generally such an amnesia develops after the excitement already described, with confusion of consciousness; this excitement lasts some days, then the patient becomes quiet, and his consciousness becomes clear, he begins at the same time to gain back his mental faculties, but his memory remains deeply disturbed. This especially shows itself by his asking the same question and repeating the same things. In the beginning the presence of a mental disturbance is hard to recognize in conversation; he gives the impression of a man who is complete master of his mental faculties, draws correct conclusions from given premises, plays cards and chess, in short, conducts himself like a mentally sound man, and only after a long conversation can one notice that from time to time the patient mixes up matters in an extraordinary manner, and does not remember what goes on about him, does not remember whether he has eaten, whether he has been out of bed. Many times the patient immediately forgets what has happened; some one comes to him and speaks to him, goes away for half a minute, and on his return the patient has no recollection that he has been with him. He may read the same page for an hour and have no recollection of what he has read. He may repeat the same things twenty times without being in the least conscious of the constant repetition of the stereotyped phrase. He cannot remember the persons with whom he comes into contact exclusively at the time of his sickness, although he sees them constantly, and every time he sees them he is sure that it is the first time.

The phenomena in which the amnesia is manifested differ in some degree according to the degree of the disease and the intensity of the disturbance. In the slighter degrees the memory for the more recent past is not completely lost but the events remain only vague, floating in memory. Often the patient recollects the affair itself but not the time when it took place; in other cases the forgetfulness concerns the peculiar thought-processes, in consequence of which the patient does not know what he has said, and continually asks one and the same question. Sometimes all the facts are present in memory, but the patient needs special conditions to bring them to consciousness.

On the other hand, in very severe cases the amnesia is much deeper, and the recollection is lost not only for recent events but also for earlier ones; it especially happens that the present momentarily disappears out of the patient's memory while events of years ago come to the front, and the patient mingles old reminiscences with new impressions of the present; he thinks himself in the same conditions as thirty years ago, and the persons about him to be those whom he knew at that time, who, perhaps, have long been dead. In the more severe forms the memory for events is completely lost, and even the word memory disappears; the patient forgets his own name and brings out unconnected sounds instead of the words. With the severe forms of amnesia there also ordinarily occurs a marked clouding of consciousness, which in the severest cases may amount to a condition of complete loss of sense. The amnesia has no stationary character, it may be greater or less. The variations in its intensity depend among other things on temporary conditions; by fixing the attention of the patient and securing his good will the memory is often better. Most frequently, however, the intensity of the amnesia naturally depends on the general course of the disease and on the depth of the general disturbance. Thus the amnesia

diminishes on the improvement of the disease, and may entirely disappear; but if the disease becomes worse the amnesia becomes deeper and deeper, and in addition to the symptoms of the amnesia a marked confusion is developed. This confusion comes out in slight degrees in this form of amnesia, but the confusion is not with regard to the impressions that the patient receives at the moment but only with the earlier events. To the question how he passes his time the patient often does not answer at all what is the case, but replies that he went to the city yesterday, whereas he has not left his bed for two months; he tells of imaginary visits, conversations, etc.; sometimes such patients invent a story and repeat this continually, so that a peculiar form of delirium develops having its root in pseudo-reminiscences.

These are in general the most characteristic features of the mental disturbance observed in patients suffering from this disease. By the side of the mental symptoms there go, as already said, the ordinary phenomena of degenerative multiple neuritis, such as paralyses of the lower, and sometimes also of the upper extremities. These symptoms are not always clearly defined; in many cases they are only indicated by insignificant pains in the legs and unsteady gait. The patellar-reflex does not entirely disappear, but is frequently increased, or remains normal. In addition there can always be found somewhere on careful examination the signs of neuritis, which thus assists in the diagnosis of the psychical disturbance. Besides the phenomena of neuritis there also ordinarily exists in this disease disturbances of the general organism. There is much emaciation, very frequently severe vomiting, diminished excretion of urine, which on this account appears reddish brown like strong tea. The phenomena of myositis are not rarely present. Sometimes the heart's action is disturbed and the pulse is irregular; at times dropsy develops; in women the menses stop; lower temperature develops. Besides the neuritis and the symptoms of disturbance in the hemispheres, other phenomena related to the brain and cord not rarely develop, such as disturbances of speech and swallowing, and sometimes opthalmoplegia externa, nystagmus and the like.

The course and termination of the disease depend on its intensity and the conditions under which it has developed. As already stated, the disturbance often comes on in the course of other diseases, acute or chronic; it is also not at all rare in chronic alcoholism, as well as common in the different intoxications. Not infrequently, for example, in alcoholism the disease may set in with symptoms which are entirely similar to delirium tremens, and subsequently there are joined to this the paralyses and the characteristic disturbance of memory. A similar beginning not rarely comes on in the course of puerperal diseases; an attack of panphobia suddenly breaks out with intense excitement, followed by confusion of consciousness, failure of memory and other symptoms.

In other cases in very weak patients the disease comes on unnoticed, without a sharply marked attack; a gradually increasing forgetfulness develops, and then confusion of consciousness is added to this, reaching the highest degree. The termination of the disease depends equally on its intensity and its mode of origin.

If the source of the disease is removed the termination is not infrequently a favorable one, recovery may set in, generally after a very long time, after several months, still oftener after some years. If, on the contrary, the source of the disease is not removable, if it is, for example, a disturbance that has developed on the basis of a tuberculous or carcinomatous cachexia the termination is for the most part an unfavorable one. The disease may also proceed to a fatal termination if it develops with great intensity in an organism which has only slight resistive power. Thus the beginning, course and termination of the disease,

stand in the most immediate relation to the etiology. The etiology is the same as that of multiple neuritis, and all the causes which may bring on multiple neuritis lead at times also to this form of multiple disturbance. As multiple neuritis comes on with special frequency in drinkers so this form of disease comes on very frequently in alcoholic neuritis and alcoholic paralysis.

The mental disturbance above described has received some attention by different writers, first by Magnus Huss, but no one saw in the mental disease anything peculiarly connected with the neuritis, but all held the psychosis to be simply a complication of the disease under the influence of alcohol. Korsakoff claims to have been the first to show that a completely analogous mental disturbance develops in cases of multiple neuritis where alcohol can play absolutely no rôle as an etiological factor, and he has published fourteen cases of multiple neuritis of non-alcoholic source with a clearly marked mental disturbance. These observations lead Korsakoff to conclude that this mental disturbance belongs to multiple neuritis and to ascribe its origin to the influence of the same pathogenic character which produce multiple neuritis. These conditions do not always appear to bring on the mental disturbance in the same degree as the neuritis, for in many cases the neuritic symptoms appear more marked because the pathogenic agent has worked more on the peripheral nervous system, while in other cases the mental symptoms predominate in consequence of the pathogenic agent influencing the brain by preference. In still other cases the cerebral and peripheral disturbances are marked in almost equal manner.

Turning to the etiology of the fourteen cases published by Korsakoff we find the sources of the disease to be very different, such as the presence of a dead foetus, puerperal septicaemia, accumulation of feces, typhoid tuberculosis, diabetes mellitus, lymphadenoma, and the breaking down of a tumor. Adding to these that this form of disease also develops in alcoholism, poisoning with arsenic, lead, sulphuric acid, carbonic oxide, etc., we see that the sources of the disease are extremely varied. Still it is easy to see that there is something in common in them all, since in all these cases the composition of the blood is altered poisonous substances are accumulated in the blood, and it is in the highest degree probable that it is these which poison the nervous system, in individual cases the peripheral nervous system being puerperally affected, in other cases the central nervous system, but often both in the same degree. It is hard to say what these poisonous substances are, but in most cases they belong to the ptomaines or leucomaines, which have reached the organism from the outside or have developed in it under favorable conditions. Korsakoff has very properly named all of them *toxæmic cerebropathies* (cerebropathie psychica toxæmica). They may also be called *polyneuritic psychoses* (psychosis polyneuritica), but it must be borne in mind that cases of this kind of mental disturbance may develop in which the symptoms of multiple degenerative neuritis may be poorly marked and thus may be overlooked. The pathological anatomy of the disease is still not sufficiently explained, but the presence of multiple degenerative neuritis may be looked on as proved.

Ueber eine besondere Form psychischer Störung combinirt mit multipler Neuritis. S. S. KORSAKOW, Arch. f. Psych., 1890, xxi Band, 3 Heft. p. 669.

The present article is mostly taken up with a consideration of the etiology of multiple neuritis, and the author refers to the fact that in the beginning of the year 1887 he advanced the theory that in addition to the poisons that get into the body from the outside and cause neuritis, this may also arise from poisons developing in the body itself—ptomaines and leucomaines. The views of Rosenheim and Leyden on the origin of